

Chapter 10

Penetrating Keratoplasty (PKP)

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Abstract Patients should have been evaluated and deemed appropriate for such surgical intervention. Patients should have been educated about the risks and benefits of the procedure, including alternatives.

Keywords Penetrating keratoplasty • PK • Corneal transplant • Keratoconus • Corneal dystrophies • Trauma

Indications

dystrophy, infectious or traumatic stromal scarring, bullous keratopathy, herpetic scarring, corneal perforation, irregular healing, corneal ectasia, iridocorneal endothelial syndrome, or prior failed corneal grafts.

Essential Steps

1. Corneal diameter measurement
2. Corneal donor diameter measurement
3. Scleral support ring application
4. Preparation and punch of donor cornea
5. Partial thickness corneal groove
6. Trephination
7. Excision of patient's cornea
8. Implantation of donor cornea
9. Watertight wound and anterior chamber
10. Application of antibiotic/patch/and shield

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Complications

- Rejection of graft
- Endophthalmitis
- Wound dehiscence
- Wound leak
- Flat anterior chamber
- Iris prolapse
- Expulsive hemorrhage
- Cataract formation
- Irregular astigmatism
- Suture abscess/erosion
- Intraocular hypertension

Template Operative Dictation

Preoperative diagnosis: *Corneal scar (OD/OS)*

Procedure: Penetrating keratoplasty (*OD/OS*)

Postoperative diagnosis: *Same*

Indication: This ____-year-old (*male/female*) developed a full thickness corneal scar following a traumatic event. The patient's vision did not improve with (*spectacle/rigid contact lens*) over a period of ____ years. After a detailed review of risks and benefits, the patient elected to undergo the procedure.

Description of the procedure: The patient was identified in the preoperative area, and the (*right/left*) eye was marked with a marking pen. The patient was brought into the OR. After proper time-out was performed verifying correct patient, procedure, site, positioning, and special equipment prior to starting the case, (*general/local*) anesthesia was induced. The (*right/left*) eye was prepped and draped in the usual sterile fashion. (*Steri-Strips/tegaderm/others*) were used to retract the eyelashes out of the field. The operating microscope was centered over the (*right/left*) eye, and an eyelid speculum was placed in the (*right/left*) eye.

The corneal diameter was measured with calipers, and it was determined that performing an __×__ mm excision with an __×__ mm donor would be appropriate. A scleral support fixation ring was sutured onto the globe using # interrupted 7-0 silk sutures. A moist ophthalmic sponge was placed on the patient's cornea. Attention was turned to the donor cornea, which had come from a ____-year-old (*male/female*) who had died of ____ on (*month, day, year*), which was rated in (*fair/good/excellent*) condition with a cell count of # and collected on (*month, day, year*) by the eye bank. The donor cornea was removed from the corneal storage media and placed on the __×__ mm corneal punch. Care was taken to ensure that the endothelial side was face up. Corneal storage media was added to the donor corneal punch and set aside.

Attention was then turned to the patient's cornea, and a partial thickness corneal groove was then made with the × mm trephination blade and handle. The anterior chamber was entered perpendicularly with a micro-sharp, and the cornea was excised using right and left corneal scissors following the injection of viscoelastic into the anterior chamber. The donor cornea was transplanted into place using cardinal sutures of 9-0 nylon at the 12 o'clock, 3 o'clock, 6 o'clock, and 9 o'clock positions (or more).

The wound was then closed with additional sutures of 10-0 nylon. The previously placed cardinal sutures were then removed and replaced with 10-0 nylon sutures. All the suture knots were trimmed and buried. The wound was tested and noted to be watertight. The anterior chamber was deep and well formed. The fixation ring was then removed. Subconjunctival injections of (antibiotics/steroids) were given. Topical steroid ointment was placed in the (right/left) eye, and the speculum was removed. A patch and shield was placed over the (right/left) eye. The patient tolerated the procedure well and was transferred to the post anesthesia care unit in stable condition.